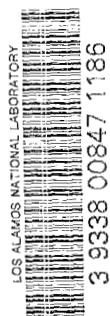


# *the Atom*

Los Alamos Scientific Laboratory

July-August 1978

LASL  
In Its  
35th Year



# *the Atom*

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## EDITOR'S NOTE

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Special thanks also goes to Jeff Pederson, the new editor of *The Atom*. Jeff interviewed Harold Agnew, Charles Browne, Robert Thorn, and Richard Taschek and prepared the interview information for use in this issue. He also took photos of the Director and associate directors and assisted with production of this issue in many ways.

# The Los Alamos Scientific Laboratory

## After 35 Years

Los Alamos Scientific Laboratory has been in the business of research since its inception during the Second World War, originally to meet the demands of a singular effort -- to build an atomic bomb -- but over the years, the research has broadened to provide the United States with an impressive technology base.

An atomic weapon was put together here and tested in the southern part of New Mexico. From that blast, knowledge of nuclear energy has mushroomed, and the growing knowledge has been, is being, and will continue to be used to create beneficial products and services for mankind.

The Laboratory has moved steadily away from a single purpose for existence -- that of designing weapons -- to a more varied research effort.

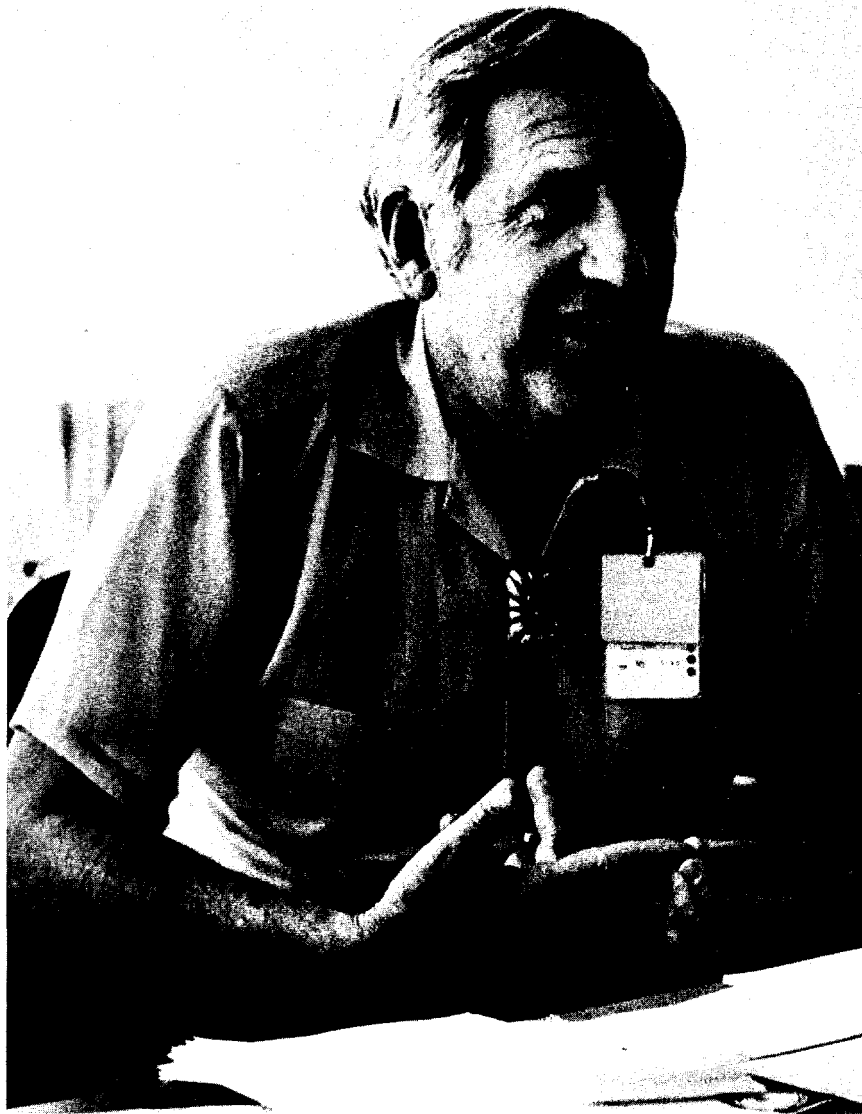
Much is being done now to explore alternate sources of energy, and LASL is playing a big part with its hot dry rock geothermal, solar, and nuclear fusion and fission research. There is experimentation also into ways to get more out of fossil fuels, as well as other potential sources of energy.

Weapon design and development still accounts for about half of the Laboratory's funding picture, but the money from weapons programs has created "spin-off" research programs in many areas.

So, after 35 years, Los Alamos Scientific Laboratory is very much alive amidst its ever-expanding technology base. Its role in research for this country is growing in importance, and over the next 35 years, this growth is expected to continue.

# Harold Agnew Talks About The Laboratory

PVB 78250-42  
Filed Dir. with Agnew, Thorn, Browne



"If we don't take some positive steps, we may end up being a farmers' market with central heating." — Harold M. Agnew

**In what aspects has the role of LASL changed over the past 35 years?**

It's clear the emphasis has changed, and that we no longer have only one primary objective. In 1943, we wanted to establish a technology base for nuclear weapons and that hasn't changed. Now the technology base has broadened, and we attempt to use it for specific projects for the overall needs of the country.

**Is there a single greatest accomplishment of the Laboratory?**

Yes, it's being recognized as a scientific laboratory, and that's been highlighted through our work in major scientific fields. Historically, of course, the world will remember the A-bomb. There's no question as far as its impact on the world social order.

**Do you foresee the role of LASL changing in the future?**

No, our responsibility to provide the technology base will continue. We have more challenges in energy, but science is science. We will probably see more interaction in the "soft" sciences, political and social fields. People working with fission energy haven't properly educated the public and alleviated the fears with respect to the benefits of nuclear power, and haven't said how their worries are amenable to technical solutions. We will have to spend more time interacting with policy makers, the press, and the public.

**What contributions will we be making to our society?**

We will make them in defense, with our contributions to the overall technology base, and through bright ideas including programs in applied photochemistry, laser fusion, biomedical research, magnetic fusion programs, super-conducting research, hot dry rock, and materials science.

**How has the relationship between the Laboratory and the government changed since 1943?**

The major changes have come with the transition from the Atomic Energy Commission, to the Energy Research and Development Admin-

istration, to the Department of Energy. The national labs were the prime muscle of the AEC and were utilized. Now, one has the feeling the Labs at times are an embarrassment, and aren't considered as an asset -- a cutting edge to help solve problems for the DOE.

Congress has always had a national lab advocacy, but today the support is not centralized. Committees in the House and Senate don't always speak together. We sometimes get caught in the middle of internal quibbling. The new group of Congressmen has no corporate memory, and views us as any other contractor with its hands out. Outside New Mexico, many Congressmen don't know what we do.

**"... we no longer have only one primary objective."**

**Do you think we'll continue to be operated by the University of California?**

I don't know. Each day I have more reservations whether it's in LASL's best interest. There may be a change one of these days. There's a lack of positive support for us in California, and a change might be better for us and for the government. I believe there are alternative arrangements that might prove beneficial to all those presently involved.

**Will LASL continue to grow in size?**

We foresee little growth under present DOE guidelines, perhaps one to two percent annually. We might be at optimum size now. We don't have the facilities, and it would be pretty awful with more than 1,000 additional people.

**Will Lawrence Livermore and LASL be split into one weapons, and one noweapons, facility?**

It could happen, but the history of competition is deep seated. In the distant future, if we experience profound cuts in funding, I would rather see one healthy lab than two cripples.

**Has the LLL-LASL competition since 1952 been healthy?**

It's been healthy in the past, but may be costly for the United States in some regards. Innovations don't happen so often as they once did because we know more and more, and we pay a price for every "leap." People also have to fight harder and harder, to get less and less from a cupboard that is becoming barer.

**Do the American people really understand what we are trying to do?**

The World War II age group does, many young people don't, but the newer generation in their late teens is more back on track. The anti-war generation with some professional dissenters in the ranks no longer has a war to crusade against. It's almost as if they were off to the crusades to fight the unclean.

**Do you foresee major reorganizations?**

Yes. We've reached the size and diversity where we can't manage effectively as we are now set up. We are actively discussing this with our senior people. And we did the "unheard of thing" by hiring Arthur D. Little, consultants from Boston, to look over both us and our plans. Perhaps by January 1 we'll know more. We may increase our overhead with some changes, perhaps expand this office to share the load and get the nonweapons people working together better than now; the weapons groups seem to pull together more. If we don't take some positive steps, we may end up being a farmer's market with central heating.

**There is increasing dissent over our nuclear policy. What role will this energy play in our national plans?**

## LASL Director Harold M. Agnew

Harold M. Agnew, 57, became Laboratory Director in 1970 after leading the Weapons Division for several years. He was part of the group that worked with Enrico Fermi at the University of Chicago, where man first initiated and controlled a self-sustaining chain reaction on December 2, 1942. Agnew joined the Los Alamos Laboratory (as it was then called) in March of 1943, working on the first atomic bomb. He flew with the 509th Bombardment Group as a member of the scientific team on the first nuclear strike against Hiroshima, Japan, in August of 1945. He received his doctorate with Fermi in 1949 at Chicago and returned to Los Alamos after a three-year educational break. Agnew has held a number of positions at the Laboratory, and was on leave for 2½ years in the 1960s to serve as scientific advisor at NATO headquarters in Paris. He has also served two terms in the New Mexico state Senate, is a Woodrow Wilson National Fellow, and has been on the New Mexico Health and Social Services Board. He is the former chairman, and is a member of, the General Advisory Committee to the Arms Control and Disarmament Agency.

I don't know. It should have assumed a role no less important than coal. In terms of efficiency, environmental impact, and availability, nuclear power is clearly superior to anything but hydroelectricity — and then there are people who don't like dams. The sun is okay for some applications, but it won't do it all. I'm discouraged we couldn't move with the light water reactors, the breeder reactor, and fuel reprocessing faster than we have.

**Do you identify any crying needs at LASL?**

Yes. We are desperate for space to consolidate our efforts. Most all of the "newer" divisions, for example, are geographically dispersed. The support complex will help a lot in three years.

**Is Los Alamos now regarded as a "real" county by other New Mexicans?**

The frictions are mostly gone. It's clear we are a county, that we

employ people from a hundred miles away north and south, and the state House and Senate leaders have been constructive. There are still some differences — even within Santa Fe itself there are.

**What made you come to LASL?**

The real reason I came was because Oppie liked my wife Beverly. I came myself in March, 1943, and she stayed in Denver to see family members. One Sunday afternoon by the Big House, I came up to Oppenheimer "puppydog fashion" and said, "I'm here." He asked me where Beverly was, making his point clear. She came two weeks later.

**How did your motion pictures of the first atomic bombing stay out of military hands after you flew on the Enola Gay's escort plane, the Great Artiste?**

I got them back here, through a lot of lying and hiding, despite General Groves. I was the only one

that had the films, but I never physically had them on my trip back to Los Alamos, starting from the Marianas Islands. The gumshoes would check me at every Pacific stop. A buddy of mine tried to arrange a deal without my knowledge with Collier's magazine. But he couldn't deliver any pictures, since I had them, so eventually I got turned in out of spite. I gave them to a guarded courier, who later gave the films to me, and back in Los Alamos I made a break for Oppie's office before they could collar me.

The anti-nuclear people don't understand how paranoid we were during the war. It was Justice Earl Warren, then governor of California, who ordered Japanese Americans locked up during the war. If I were a lawyer, I believe I'd get a coalition together and attempt to get back the property that was lost in California and other states by those families. I'd also try to find out who acquired those properties while owners were absent. If you really want a human rights crusade, that's it. It's just starting to come out now, slowly.

We were really frightened. In Chicago with Fermi, we talked about the possible German bomb activities at almost every lunch. We dreamed about how to screw them up, and about who would be successful first.

**How would you compare J. Robert Oppenheimer and Enrico Fermi?**

Fermi was a great, warm-hearted genius, and he helped everybody. He liked young people and physical activities, hiking, tennis, skiing. Oppie was more distant, reserved, and brilliant. He tried, but he was not as understanding, warm or broad as Fermi. Fermi would try anything, all kinds of outdoor sports. Fermi said, "It takes me a lot longer to understand something, and when I do, I realize the person explaining it doesn't really understand." He even said that about Oppie. I clearly am a Fermi fan and am biased in attempting to compare the two.

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LASL Director Harold Agnew, far right center, heard briefings before the Enola Gay carried its atomic bomb to its Japanese target in 1945. Other people at this briefing include Paul Tibbets, front left, and behind Tibbets, Norm Ramsey, Chuck Sweeney, Don Mastick, Luis Alvarez, and Dick Ashworth, among others.

# Charles Browne Comments

PVB 782 80-1 Field Dir off Agnew, Thorne, Browne

**Do you feel the role of LASL has changed over the past 35 years? In what aspects?**

We were born as a weapons lab, and that's what we were for over half of our lifetime. The first big deviation from that was the Rover program, beginning in the mid-1950s. Since then, nonweapons work has proliferated, although most of our efforts are in the nuclear arena. What's most important is we're still a research and development laboratory.

**What has been the Laboratory's single greatest accomplishment?**

The wartime bomb program, of course — and its sequel, the thermonuclear program of the 1950s.

**With regard to our society, what prime contributions will we be making?**

I hope that we will be continuing our weapons role to ensure that the national capability is second to none in the world. We will also be active in the energy arena, but you don't know what you will discover five years from now.

**Will we continue to be operated by the University of California?**

Certainly for the near future. The current contract runs through 1982, and the relationship will almost certainly continue until then.

**Could Lawrence Livermore and LASL be split into one weapons, and one nonweapons, Laboratory?**

The one-weapons lab question has come up many times. The outcome probably will be driven by outside circumstances. If this country sharply diminishes its weapons program, for example, two labs may not be needed.



**"Any time you get the gravity machine to run, we won't need nuclear power plants." — Charles I. Browne**

**"In something as important to the United States as nuclear weapons capability, there is something like insurance with the two labs. There has always been give and take."**

**Has the competition between the two laboratories been a healthy one?**

In something as important to the United States as nuclear weapons capability, there is something like insurance with the two labs. There has always been give and take.

**Do you feel the American people really understand what we are trying to do here?**

I doubt it very much. Fifteen or 20 years ago, if you would happen to mention in casual conversation with a seatmate on an airplane that you were from Los Alamos, there was a fair chance that the person would at least have heard the name. Today, you would be most likely to get a blank stare.

**In light of LASL's accomplishments with radwaste disposal, nuclear safeguards, reactor design, and so forth, should we be spreading the word more regarding the positive side of the nuclear coin?**

Of course. The nuclear debate is a dumb one until someone comes up with a better alternative. It's okay to say nuclear plants are bad, but is coal then good? Any time you get the gravity machine to run, we won't need any nuclear power plants.

**In 1943, it's been written, the average age at Los Alamos was 24. Now it is close to double that. Does this make for a difference in the personal fabric here?**

One writer has said the war-timers here thought anyone over 35 was old. And someone "aged" is always five years older than you. In 1943 things were more exciting, to be sure, and there was a young staff with an urgent mission.

**Has Los Alamos been given status as a "real" town by other New Mexicans, or is there a lingering stigma attached to the county?**

We are not a representative New Mexican town, but we certainly are considered a fixture and a part of the scene. Those of us who have been here awhile have been heavily converted to being New Mexicans.

**Some have said the military and weapons R&D budgets require more scrutiny by Congress. Do you agree?**

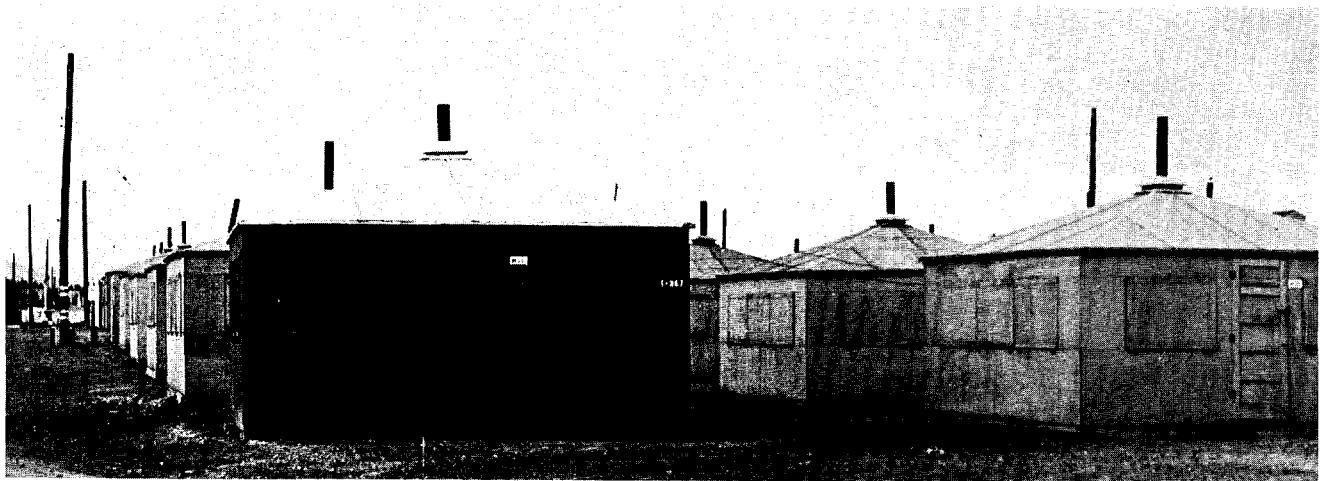
Any budget of the size of the military and weapons R&D budgets certainly deserve scrutiny. By the same token, the much larger procurement budgets deserve much more.

**Does LASL have any crying needs, in terms of people, buildings, or equipment at this time?**

We need the support complex, for 500 employees, desperately. We need to remove the too-many temporaries and get away from the rental spaces. Our first need is always bright young people. Our second need is to upgrade our facilities.

## Administration: Charles Browne

Charles I. Browne became LASL's associate director for administration in 1976 after serving two years as assistant director. Now 56, he received a Ph.D. degree in radiochemistry from the University of California at Berkeley in 1952. Browne was a member of the U.S. Air Force from 1942 to 1955 and was a military staff member at Los Alamos from 1952 to 1955, when he became a Laboratory employee in J-Division. He has been leader of J-Division, participated in weapons tests from 1952 through 1974, and is a co-discoverer of elements 99 and 100. Browne is a Fellow of both the American Physical Society and the American Institute of Chemists.



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Rows of hutments were home to many early LASL workers



# The Laboratory And Robert Thorn

How has LASL's role changed over the past 35 years?

We do less weapons work than we once did, as a percentage of our budget, but funding patterns have changed too. In 1943, the whole lab was operated from the same fund. Now, we are multi-funded, and there seem to be more barriers in getting help from people. Some of the smaller programs can't spare the help or any of their money. And a program manager may very well be a man in Washington.

What has been LASL's greatest accomplishment?

The bomb. All others must pale beside that.

How do you foresee the role of LASL changing in the future?

For the next 10-20 years, there

"I'm surprised how many don't know about us any more, even though defense rates pretty highly in the national polls." — Robert N. Thorn

will still be a requirement for a weapons program, and as our primary purpose, that will be the one thing you can hang your hat on. We will work on energy programs too, but there is less of a focus on continuing programs in that field. If we get good results with energy, industry will take it over.

What prime contributions can we make for our society?

Aside from weapons, contributions can be in long-term energy



PVB 78250-22 Filed Dir - 200 Agnew Thorn, Browne...

projects, including laser fusion and the breeder reactor. We must constantly examine programs dealing with the fuel cycle, safeguards, and security to make sure information and material doesn't fall into unauthorized hands.

We have a unique facility here — remote land, a computer center, our history of plutonium handling, our high explosives capability. The latter has implications for conventional warfare and for underground rubblization to obtain coal products in place.

## Weapons: Robert Thorn

Robert N. Thorn became the associate director for weapons in 1976, moving from his position as leader of TD Division. Thorn is 53 and a Purple Heart recipient from World War II combat with the 75th Infantry Division in Europe. He received a Ph.D. degree in physics from Harvard University in 1953 and joined the Laboratory that year as a staff member in T Division. He had worked in Los Alamos as a summer graduate student in 1949. Thorn belongs to many national societies and received the Ernest O. Lawrence Award from the Atomic Energy Commission in 1967.

**How has the relationship between LASL and the government changed since 1943?**

As time goes on, we get farther down in the organization. Once, LASL and the Atomic Energy Commission were one and the same. Now, we're down in the Department of Energy bureaucracy, which thinks more about yesterday's problem solving.

We had the Joint Committee on Atomic Energy until 1976, now we have 10 committees to talk to. Taxpayers now take a closer look at government programs, asking of the need for many of them. People are also looking at environmental impacts, which is a great change.

**How do you foresee future funding here?**

Our rapid growth of the past five years is about over, and we'll stay about the same for awhile.

**Will the Laboratory continue to grow in numbers of employees?**

We are close to the optimum now. We have to catch up on office space before we can talk about growth. If we are limited to a few per cent per year, that wouldn't be bad.

**Could Lawrence Livermore and LASL be separated into one non-weapons, and one weapons, facility?**

It's a strong possibility for the future. There have been studies on that.

**Has the competition between the two laboratories been a healthy one?**

Yes, and it is a strongly competitive relationship now. But there is also a great amount of cooperation at the working level.

**Do you feel the American people really understand what we are trying to do?**

Most people don't even know we exist. I'm surprised how many don't know about us any more, even through defense rates pretty highly in the national polls.

**What are we doing that benefits the American people?**

Everything in the weapons program is of benefit. We are doing work for the Trident, Minuteman

and Cruise missiles, and for the air-carried lay-down bomb.

**Does LASL seem different in scope and philosophy now, compared with when you began working here?**

Sure. It was all weapons 25 years ago, and I was part of it as a designer. Now we have lasers, reactors, the Meson Physics Facility, and so forth.

**What part will nuclear power play in America's energy policy?**

Nuclear power is the only way to go. We have no choice. I think more people will see that.

**Should we be spreading the word more regarding the positive side of the nuclear coin?**

We try to advance the arguments for nuclear power and promote the safe, controlled use through our safeguards program. We also perform studies, and know the dangers from coal plants may exceed that of nuclear plants. It's a fully thing — when a propane truck in Spain killed many people in an accident, people yawn at the news. But when the story deals with nuclear power, people perk up and the press blows it up.

**"We must constantly examine programs dealing with the fuel cycle, safeguards and security to make sure information doesn't fall into unauthorized hands."**

In 1943, the average Los Alamos age was 24, and now it is somewhere around 44. Does this change the personal fabric here?

There were a lot of younger Army people here in 1943, taking care of the town, so it's apples and oranges. Now, we have less turnover, and people stay on the job.

Do you feel Los Alamos has been given status as a "real" New Mexico community after 35 years of existence?

I think we're considered to be different and I think in fact we are

different. Here the population is fairly homogeneous, considering the educational level, for example. There is no place in the U.S. with such a similarity of interest.

**Could the recently passed Proposition 13, which cut California property taxes, affect LASL?**

Yes. We work for the University of California. Any cutbacks could be blanket edicts, like a wage freeze, for instance. Fringe benefits could possibly be affected.

**Does LASL have any crying**

**needs right now?**

We need office space, and the Theoretical Design Division has the least per person of any division. And our computing demand is always greater than the computer time supply.

**Does the military R&D Budget require more scrutiny, as some suggest?**

We're getting more scrutiny than we did before. Eventually, over-regulation is counter-productive, and you can't get anything done.

## Richard Taschek Speaks Out

**Aside from weapons, how has LASL's role changed most since 1943?**

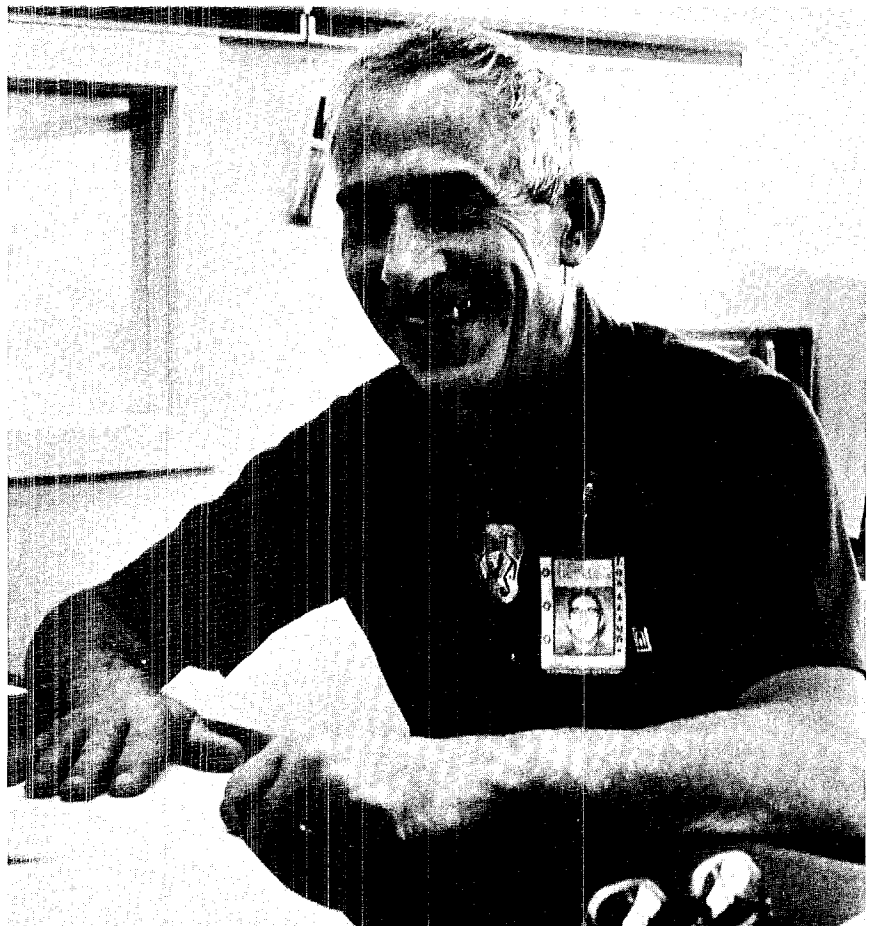
In the early 1970s, we started taking responsibility for national energy research programs. The Atomic Energy Act was changed then too, to allow the AEC to

engage in non-nuclear programs, if they had national importance. Until then, we were almost totally a nuclear weapons lab.

**What have been the Laboratory's greatest accomplishments?**

Our initial weapon assignment; then the first fusion weapon. But

"There is a tendency to wait for Washington to tell us what to do, but that's bad for us -- it could kill the lab." — Richard F. Taschek



PHYB 78249-3 4/1/81 Dir-off  
Richard F. Taschek 9

there are many other things that have gone into books or on tape, upon which other accomplishments have been built. The public doesn't see many details of work in atomic nuclear research because of its highly specialized nature.

**How do you see LASL's role changing in the future?**

What we do, I hope, is determined by people with innovation and initiative. There is a tendency to wait for Washington to tell us what to do, but that's bad for us — it could kill the lab. Our role in the weapons business will remain as long as the country wants it, but we must also anticipate what our present and future national problems are and tell people in Washington.

In some government laboratories, the people have been ground into the dust, and don't think "new" any more. We must try to understand how to implement something that's only an idea, which Washington cannot accomplish.

## **"Relations with the Department of Energy are quite poor"**

**What prime contributions can we make?**

The energy assignment — a real national problem. Agencies also have perceived requirements, such as doing something instantly for voters, the Congress, or the President, but the problem may take 25 years to solve. Our capability lies in working on very difficult problems that usually don't have short range answers.

Our next major effort could well be in climatology, not just the weather. What are the forces which affect world climate over 10, 50 or more years? This is very energy-related, as we saw last winter, and there is a national interest developing now. We have local programs with solar/terrestrial relationships, such as barium releases and ionospheric charges and the solar wind. Programs now here for other reasons could be brought together. Waste management, a similar case, is in half a dozen divisions presently.

**How has the Laboratory's relationship with the government and Congress changed over the past 35 years?**

For most of the Atomic Energy period we reported to one joint Congressional committee. Things went smoothly, money was available, and we had the Manhattan Project reputation. One could talk to the AEC Commissioners, and a fair share of them were scientists. Now, it's more complex and it's difficult to talk to upper-level agency heads, or even lower-level ones. Many at best are managers, and at worst, professional bureaucrats.

Relations with the Department of Energy are quite poor. It's the same with other labs. They are true national assets, but there are strong forces to break them up. However, universities and industry won't do the weapons programs.

**How do you foresee funding and personnel growth here?**

We clearly can't grow at the rate we have been recently. It's difficult to manage, and we have constraints in geography, water, and transportation. Over the next few years, we'll probably stay quite stable.

**Has the competition between LASL and Lawrence Livermore been a healthy one?**

In general it has been favorable. You have to remember the competition takes place in early conceptual phases of weaponry. The labs' output has been the sum of LASL and LLL; we haven't made identical versions of projects.

**Do the American people really understand what we're trying to do?**

Not beyond the "weapons lab" definition. Most would say that's a good thing, but the voice you hear most loudly is that of a minority. Most of the general public understands the implications, if not the details.

## **Research: Richard Taschek**

Richard F. Taschek, 63, came to work at Los Alamos in April of 1943, as a Physics Division staff member. He was named associate director for research in 1972, after serving as P-3 group leader (1945-

58), P-Division alternate division leader, and P-Division leader (1962-70). Taschek received a Ph.D. degree in physics and mathematics from the University of Wisconsin in 1941. He participated in fallout studies of the 1945 Trinity Site blast and other weapons tests through 1962. Taschek has co-authored scientific papers and belonged to numerous national committees. He is a Fellow of the American Nuclear Society, the American Physical Society, and the American Association for the Advancement of Science.

**Are there any new programs we may be undertaking?**

We've recently engaged in accelerator development technology, and in laser chemistry to process a variety of materials. We're not fighting for large programs now, but we'd like to take on a role in waste management, in geological science in particular.

**What part will nuclear energy play in our national policies over the next decades?**

I personally feel the nation has to use nuclear energy. There is no question about it, including the breeder reactor and fuel reprocessing. Our stance, for political reasons, is just dumb, technologically. Unfortunately, pressure groups have become powerful -- partly because we in the scientific community haven't answered questions properly. But if these groups attacked other energy sources in a similar fashion, like gasoline and coal, the nation could come to a grinding halt. Waste management problems haven't been answered in large part because a large-sized demonstration project has never been carried out, due to the zealotry of special interest groups.

**Should we be saying more about the benefits of nuclear power?**

We should, but communication to the public is not our most serious problem. I don't think there's anything to change the mind of those special interest groups who set up roadblocks. Crucial communication comes down to talking to a court or a regulatory board. Of course, if winters are bad and there's another coal strike . . . I think coal plants are an abomination, and a bunch of legal guys are holding up our energy progress.

**Has Los Alamos been accepted now as a "real" town by the rest of New Mexico?**

For a little while we had a "stigma" but we're not foreigners now. We employ a hell of a lot of people, and this part of New Mexico has changed a lot since 1943. I think people live together pretty well. LASL and Sandia Laboratories have probably speeded up by 20 years the educational progress at places like the University of New Mexico and NMIMT at Socorro.

**What do you recall about personalities and events during your years here?**

I've participated widely in re-

search, test activities, and rocket programs, and they were all exciting. My college years were changing times for nuclear science. Even though I was just one of the boys working at the lab in 1943, Los Alamos was such that we were able to know the key scientists and I thought highly of them all -- Oppenheimer, Teller, Fermi, Ulam, Bob Wilson, John Williams, Bethe, Weisskopf.

Oppenheimer was gentle and had an incisive mind. Fermi was a really nice guy, respected by all. He could solve problems off the top of his head. He worked on theory, he worked in the lab, he was the most outstanding scientist -- and person -- of the group. I also got to know Norris Bradbury (Director from 1945 to 1970) very well and think very highly of him.

We got to know international scientists during the 10-year period after the war. We're still one of three or so major scientific labs in the world today. High energy physics is the only area we're not strong in. This gives us foreign visitors and helps us hire bright young people. If the general public is unaware of us, that's not true of the scientific community.



Washing clothes: an unglamorous but appreciated task

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# The Push To Build A Bomb...

The remote area of New Mexico selected in 1942 for the Los Alamos Scientific Laboratory, as it was to become known, was the Los Alamos Mesa of the Pajarito Plateau, a 7,300-foot-high, pine-forested shelf of the Jemez Mountains 35 miles northwest of Santa Fe.

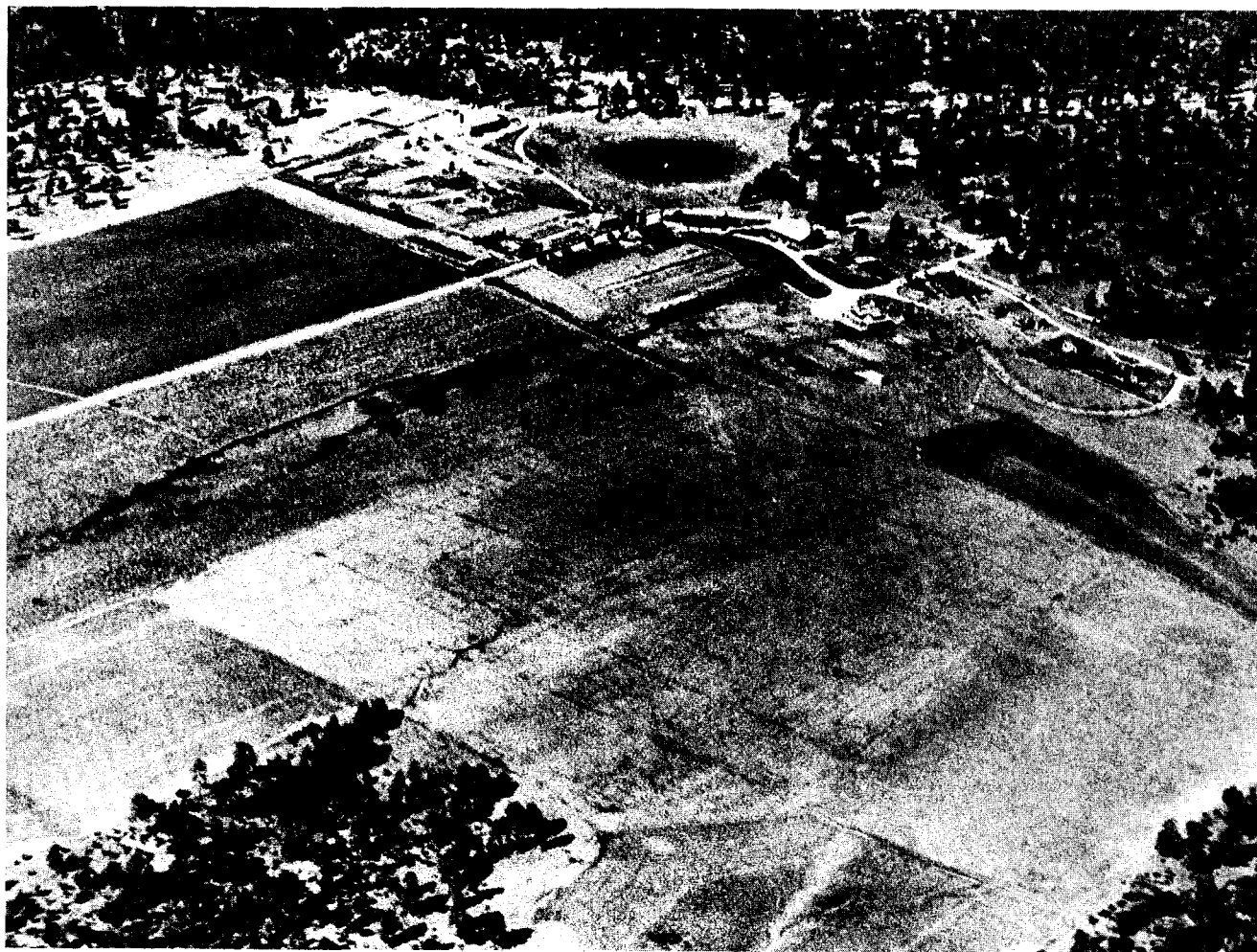
The mesa, aside from a few isolated ranches and homesteads nearby, was occupied only by the Los Alamos Ranch School for boys. Here, in some 50 log buildings, the Ranch School since 1918 had conducted for 40 to 50 boys yearly a preparatory school with ranching, camping, riding, and other outdoor recreations.

Radioactivity had been discovered before 1900. Yet the possibility of the release of large amounts of energy by nuclear chain reaction

was not realized until the announcement in January, 1939, of the discovery of fission and its experimental confirmation, and that fall U.S. scientists stepped up research into nuclear energy.

Immense stimulation was given the work by 2 significant events: entry of the United States into World War II on December 8, 1941, and initiation of the first nuclear chain reaction on December 2, 1942, in the Metallurgical Laboratory of the University of Chicago.

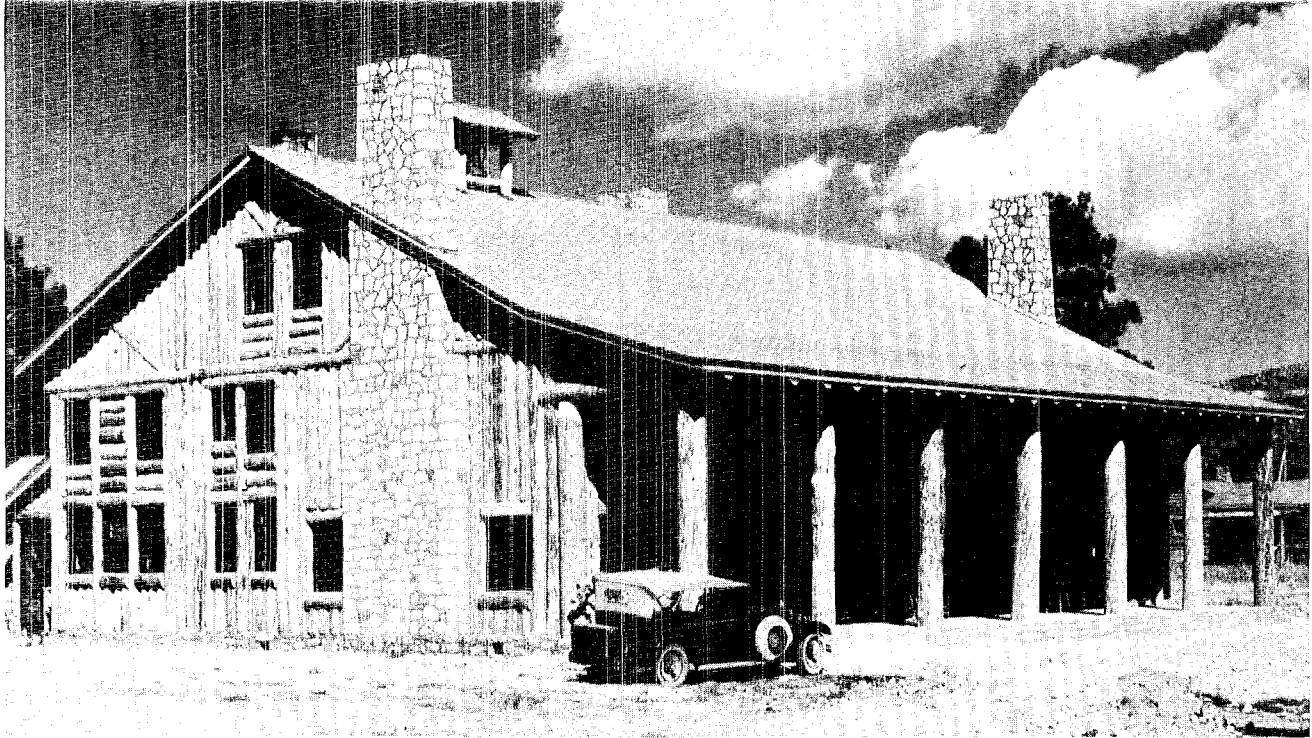
Wartime development of the atomic bomb began in 1942 under direction of the Office of Scientific Research and Development. J. Robert Oppenheimer undertook investigation of its theoretical possibilities at the University of California in Berkeley with a small



MEG NO. 6210101 Filed: History

An aerial view of the Ranch School before Laboratory development





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Fuller Lodge before the war effort took control

group of prominent physicists.

By October their theoretical studies had progressed to the point where actual experimental work was necessary. Several locations in the Southwest were surveyed as possible sites for the required new laboratory — including the Ranch School where Oppenheimer had visited on pack trips from his summer home in the nearby Sangre de Cristo Mountains.

The decision was made to center the weapon research, called Project Y, at the Los Alamos Ranch School. Governing considerations for its choice were the secrecy and safety that its remote and isolated location provided. Mild winters of-

fered opportunities for outdoor work throughout the year. The Ranch School buildings also could easily accommodate the 100 or so scientists and their families who, it was believed, would be all that were required.

On November 25, 1942, the Under-secretary of War directed acquisition of the site. This ultimately comprised about 800 acres of ranch property, 2,900 acres in home-

steads and grazing land, and 45,000 acres in public domain land supervised by the Forest Service.

Early in December the first construction crews arrived. In January, 1943, the University of California was selected to operate the new laboratory, and a formal nonprofit contract was soon drawn with the Manhattan Engineer District of the War Department. (The Manhattan Engineer District was the code name for the wartime nuclear research effort seeking development of an atomic bomb.) The first scientists arrived on "The Hill" in March.

From 1943 to late 1945 the Laboratory was devoted to its secret wartime mission of developing an atomic bomb.

Oppenheimer, as Laboratory Director, supervised the scientific research aimed at developing atomic weapons. Maj. Gen. Leslie R. Groves of the Manhattan Engineer

## Created A Major National Laboratory

District had overall responsibility for the War Department.

The list of scientific leaders at Los Alamos during the war years is too lengthy to recite completely, but some of them were Enrico Fermi, Bruno Rossi, and Emilio Segre from Italy; Niels Bohr from Denmark; John von Neumann and Edward Teller from Hungary; Stanislaw Ulam from Poland; I.I. Rabi and Victor Weisskopf from Austria; Hans Bethe and Rolf Landshoff from Germany; and George Kistia-kowsky from Russia. There was also a British contingent including Sir James Chadwick, Cyril Smith, Otto Frisch, and W.G. Penney.

Other well-known scientists who came to Los Alamos included Eric Jette, Robert Bacher, Philip Morrison, Robert Wilson, William Parsons, Joseph Kennedy, Kenneth Bainbridge, Richard Feynman, Edwin McMillan, John Manley, Nick Metropolis, Darol Froman, Donald Hornig, L.D.P. King, Alvin Graves, Samuel Allison, Carson Mark, Charles Critchfield, Luis Alvarez, and Norman Ramsey.

Some of these have remained on the Laboratory's staff while others are still regular consultants.

With these men came urgently needed equipment: a cyclotron from Harvard, 2 Van de Graaff electrostatic generators from the University of Wisconsin, a Cockcroft-Walton accelerator from the University of Illinois, and chemical and cryogenic equipment from the University of California.

All equipment and supplies had to be freighted from the railhead at Santa Fe by truck up a mountain dirt road. Temporary wooden laboratory buildings were hastily thrown up. Timber was felled and new roads bulldozed to remote

sites. Haste and expediency, under the urgency of war, guided the most delicate tasks.

President Franklin D. Roosevelt did not doubt the outcome. On June 29, 1943, he wrote the members of the Laboratory expressing his confidence in the success of their mission and his appreciation of their work under such trying conditions.

Not only was the work trying; living conditions were difficult, too. Los Alamos was an Army post. Army barracks and many types of

tarpapered dormitories, prefabs, hutments, and trailers provided most of the housing. This was insufficient, and for a time it was necessary for the Laboratory to quarter employees at Frijoles Lodge in the Bandelier National Monument, 14 miles away. Coal was hauled in for fuel. Water was scarce. The roads were often deep in winter snow and summer mud.

Added to these physical annoyances were military restrictions and rigid security controls. Laboratory members were not allowed personal



Buying essential food for family nourishment

LAT - 186 Filed: History



contact with relatives nor permitted to travel more than 100 miles from Los Alamos. Prominent scientists traveled under assumed names: Enrico Fermi was known as "Henry Farmer" and Niels Bohr as "Nicholas Baker." The word physicist was forbidden; everyone was an "engineer."

Auto registrations, drivers' licenses, income tax returns, food

and gasoline ration stamps, and insurance policies were handled by code number to avoid the disclosure of the names and whereabouts of key personnel. All mail was subject to censorship. Incoming mail was addressed simply to "P.O. Box 1663, Santa Fe, New Mexico," an obscurity that cloaked the existence of Los Alamos during the entire war. It was, in effect,

probably the biggest post office box in the world, for to it was addressed everything from a postcard to a trainload of equipment.

Scientific progress was plagued by security regulations also. The military insisted that individual scientific projects be strictly compartmentalized and not discussed so that no one could see the overall progress -- or purpose -- of the

A view of LASL living areas, left, and research areas in the early years.



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History

project. However, Oppenheimer, knowing that exchange of ideas among scientists is infinitely useful in solving problems, balked; as a result, weekly colloquia were begun. They continue in Los Alamos today.

In spite of all difficulties the Laboratory continued to grow. By July, 1943, there were 1,900 persons at Los Alamos including mili-

tary personnel and construction workers. By the end of 1943 there was a total population of 3,500 and in December, 1944, it had grown to 5,700.

The development of the first atomic bomb was beset with many problems. A few of the problems which had to be resolved were:

- Information was needed on the readiness or reluctance of a number

of isotopes to react with neutrons, protons, deuterons, tritons, alpha particles, gamma rays, and electrons.

- Methods were required for making pure plutonium metal and for forming it into yet-to-be-determined shapes needed for use in a weapon.

- Safe and reliable methods and machines were needed for the

## Workers Stick to Jobs on 'the Hill' in Face Of Disclosure of Project's Terrible Secret

Workers at Los Alamos, many of them with their children and spouses, lived for two years under the peril of sudden death from the laboratories where scientists were concocting the greatest destructive force ever conceived by man.

Revelation of the atomic bomb and its fantastic power gave Santa Fe its first knowledge of the real war role of the silent neighbors from "the Hill," which New Mexico geographers call the Pajarito Plateau—locale of the oldest civilization known to North America—the Cliff Dwellers'—and of civilization's greatest scientific advance.

Col. Gerald R. Tyler,, military commander at Los Alamos, said only a few of the 6,000 in the community knew the exact nature of the project, but the impression was general that some deadly force was housed in the laboratories behind the high wires of the "Tech Area."

### Safety Measures Taken

Tyler, probably as relieved as any that the long kept secret was out, said that civilian and military personnel went about their work without indication of anxiety for their safety. Extreme safety measures were practiced, he said.

Workers, now that they know the secret, have gone about their work calmly and, an official of the project revealed, none has asked to be relieved.

Although laboratory methods used in the work have not been disclosed, scientists unattached to the project are of the opinion that the entire area was under the constant threat of destruction. A physicist from a nearby institution compared the work of delving into the little known field of nuclear physics to that of a blindfolded person walking on the edge of a precipice. A misstep, he said, might have touched off forces even greater than that of the atomic bomb which devastated four



COL. GERALD R. TYLER

square miles in Hiroshima.

### Constant Threat

The threat of sabotage or suicide bombing by the enemy was also constantly over the mountain community. The enemy doubtless knew of the existence of the project and the very precautions practiced to safeguard its secret were proof of the importance of the work being done there. Had the enemy been able to penetrate the nation's boundaries with agents or forays of force, the laboratories of Los Alamos would doubtless have been a prime target.

Santa Fe residents were made acutely aware of the danger of the proximity of the station when Japanese threatened to invade the U.S. mainland with suicide bombers. Residents were sure that the near-

sighted Nip bombardiers would hit Santa Fe with bombs intended for Los Alamos.

And most of the town was standing by a few weeks ago to see the project blown off the mountain side as a TNT laden Japanese balloon appeared in the skies. The anti-climax came when the "balloon" was found to be the peaceful planet Venus.

Guarding against real assault is one of the duties of the military serving under Colonel Tyler. The commanding officer was assigned the post Nov. 1, 1944, following Lt. Col. Whitney Ashbridge, who, incidentally had been a student at the Los Alamos Ranch school which occupied the site before it was selected for the government's Atomic Bomb Project Laboratory.

### The Commandant

The commanding officer also supervises construction, maintenance, transportation, housing and all post services.

Colonel Tyler, an architect in civilian life, was an infantry officer in World War I winning the Silver Star Medal, the Purple Heart and two French decorations. He was called to service in the current war as a major Sept. 1, 1940. For a time he was in charge of cantonment planning, later going to Alaska and Canada for service on the Alaskan Highway.

Before assignment to Los Alamos he was director of operations for the Northwest Service Command at White Horse, Yukon Territory, where he was in charge of operation and maintenance of the Alaskan Highway, the Canol pipeline, wells and refinery, the Alaskan telephone line, the White Pass and Yukon Railroad and the port of Skagway.

Colonel Tyler was born in South Carolina and was living in Philadelphia when called into service. His wife is with him at Los Alamos.

An article about LASL in The New Mexican

handling and shaping of high explosives to tolerances more restrictive than had ever been of interest.

- Devices for arming, firing, and fusing the new weapon had to be conceived, developed, checked, and produced. A new kind of detonator was needed for the implosion weapon's high explosive system.

- A device to supply neutrons to start the chain reaction of nuclear fission was needed.

- Information was needed on the kind and extent of things that would occur when the new weapon was detonated. The energy would be released in a volume so very much smaller than that occupied by any remotely equivalent high explosive device that the entire course of the explosion would be different; but just how, when, and to what effect, no one knew.

- The damage these different effects would cause, the area damaged and by what influence, and the height the device should be from the ground to achieve the largest target area were all of great concern to scientists.

Work and tension continued to mount at Los Alamos. Theoretical studies first had proved the feasibility of a nuclear fission bomb. An enormous step now lay ahead — an actual field test with full instrumentation.

A test site was picked — a desolate desert area called the Jornada del Muerto ("Journey of the Dead Man") near Alamogordo, in southern New Mexico. The code name for the test was "Trinity."

Early in the spring of 1945 preparations began. Final assembly of the device was made in a deserted ranch house on the night of July 12. Two days later it was mounted on top of a 100-foot tower, and tedious instrumentation began. By predawn of July 16 all was ready. However, the ominous thunder and lightning of a coming storm necessitated a 90-minute postponement. Near 4 a.m. the light rain stopped, and the weather cleared. Finally, at 5:39:45 a.m. there occurred the "unprecedented,

ed, magnificent, beautiful, stupendous, and terrifying" detonation of the world's first nuclear fission device, with an estimated force equivalent to 20,000 tons of TNT.

So careful and secret had been the preparations, however, that no newspaper identified the significant event. Not until it was followed by the bombing of Hiroshima and Nagasaki and the end of the war, was it generally known that Los Alamos scientists had accomplished for the first time in history the instantaneous release of tremendous energy from atomic fission.

The Laboratory from the end of the war until 1947 went through a period of doubt and discouragement. The war was over. The job was done. Project Y reflected this immediate change in attitude with declining morale.

After the war  
many believed  
that Los Alamos  
would be  
abandoned . . .

National debate began over military versus civilian control of atomic energy. There was doubt that the University of California, which had accepted nonprofit contract operation of the project laboratory as a patriotic wartime action, would continue its contract. Senior scientists returned to their university posts or accepted job offers from industry. Younger men left to return to school.

The Laboratory's maximum number of 1,400 civilian employees and 1,600 military technicians on July 31, 1945, dwindled to its minimum number of 1,000 employees by January 1, 1946. Among those who left was Oppenheimer.

Selected to replace him in October of 1945 was Norris E. Bradbury. Bradbury, a professor of physics at Stanford University before the war, came to Los Alamos in 1944 as a naval officer and played a key role in the development of the first atomic weapons.

After the war many believed that Los Alamos would be abandoned as an unnecessary war plant. Bradbury and a number of others, however, believed that nuclear weapons development had barely begun, that other countries would develop such weapons, and that the safety and security of the United States — if not the world — depended upon the technical lead of this country.

On August 1, 1946, their faith was confirmed. The "McMahon" Atomic Energy Act of 1946 was passed by Congress. It was now apparent that under a national policy of maintaining U.S. preeminence in the field of atomic energy, LASL would continue to play a key role.

On January 1, 1947, the newly created Atomic Energy Commission took over the United States' atomic energy program, and soon thereafter the University of California agreed to continue to operate the Laboratory.

LASL, the University, and the AEC recognized that major modernization and expansion of the Laboratory would have to be made if it were to fulfill its significant functions. Accordingly, a long-range multimillion-dollar technical area building program was authorized.

It was also recognized that the sole reason for existence of the Los Alamos community was to support operation of the Laboratory and that there was insufficient space on Los Alamos Mesa to provide adequate service and community facilities. Hence, a long-range multimillion-dollar community construction program provided for expanding the community northward across Pueblo Canyon, adding to the Western Area housing, providing a modern Community Center with all service facilities, and gradually re-

placing all the temporary wartime buildings in Los Alamos.

In the late 1940's and early 1950's a gigantic effort was made in the development of the first thermonuclear or "hydrogen" bomb. The world's first fusion device was successfully tested on November 1, 1952, at the AEC's Pacific Proving Grounds.

The Laboratory's primary responsibility still is research and development work on nuclear and thermonuclear weapons and weapons components. This fundamental mission, however, has been supported from the beginning by intensive basic research and engineering development in many fields, including physics, chemistry, metallurgy, mathematics, biology, medicine, explosives, electronics, and instrumentation.

It is not surprising that the Laboratory's activities have greatly expanded — particularly in the direction of peaceful applications of nuclear energy. Only about half of LASL's total effort is now devoted to weapons. The other half is concerned with research and development in other fields associated with nuclear energy.

The little community of "100 scientists and their families" is now a thriving community of about 17,000. The Laboratory, which presently employs more than 6,000 persons, is valued at \$400 million. The yearly operating budget is more than \$170 million.

On September 1, 1970, Bradbury resigned as Director after 25 years in the post, and Harold M. Agnew succeeded him.

Agnew has been closely associ-

ated with the nuclear energy program since 1942 when he joined the University of Chicago group which worked with Enrico Fermi in achieving the world's first nuclear fission chain reaction. On April 1, 1943, he came to Los Alamos where he made significant contributions to the work of developing the first atomic bombs. Agnew flew with the 509th Bombardment Group as a member of the scientific team on the first nuclear weapon strike against Hiroshima, Japan.

Except for absences to earn his doctorate in physics and to serve as scientific advisor to the Supreme Allied Commander of NATO, he has been at Los Alamos ever since. He was head of the Weapons Physics Division when the University of California Regents selected him as Director.

Part of the downtown business district



Neg NO. 7794 Filed History

THE BULLETIN  
MONDAY, 25 JUNE 1945  
THIS PAPER IS PUBLISHED FOR THE SITE-KEEP IT HERE!

The danger of forest fires is more acute than ever because of the dry weather, so please be careful about fire when picnicking in the fields and woods wherever you go. Fighting fires is dangerous work and requires manpower greatly needed for important Project work. Be especially careful with lighted cigarettes, cigars, and pipe ashes, and be sure your picnic or camp fire is out before you leave it. If you see a fire anywhere be sure and report it by telephone as quickly as possible to the Fire Department. Whatever you do don't conclude that someone else has already reported it.

Effective today Laundry #3 (McKeeville Laundry) will be opened Monday through Thursday from 8:00 AM to 8:00 PM. It will continue to be opened from 8:00 AM to 5:00 PM on Fridays and Saturdays.

\* \* \* \* \*

MOUNTAIN LEAGUE BASEBALL GAMES, TONIGHT, 25 JUNE:

6:15 - Diamond #2 - Engineers VS. SED #2  
6:15 - Diamond #1 - MP #1 VS. MP #2

SOFTBALL LEAGUE GAMES TOMORROW NIGHT, 26 JUNE:

Officers All Stars VS. Ball Busters - Big House  
Tigers VS. Down Town A.C. - Golf Course  
Raiders VS. Exploders - Ad Building

\* \* \* \* \*

Tech PX will close at 10:30 tonight for the purpose of taking inventory.

\* \* \* \* \*

TOWN COUNCIL meets tonight at 8:30 in Fuller Lodge. Agenda for the meeting; Maid Service, Contemplated Changes in Commissary Service, and Shoe Repair.

\* \* \* \* \*

There will be a High School Physical Education Demonstration on the playground near the Big House, Wednesday, 27 June at 7:15 PM under the direction of Cpl Muriel Hiller and Pfc Robert Porton. Calisthenics, military drill and a soft-ball game will be the order of the program.

\* \* \* \* \*

KEEP YOUR EYES AND EARS OPEN FOR THE  
FIRST APPEARANCE OF "LOS CUATROS".

Beginning today various roads and parking areas in Tech Area and Housing Area will be paved, others will be treated for dust. All drivers on the post are requested to cooperate with this work by conforming to road blocks and directions from signs or men. We can do a good job with your help.

\* \* \* \* \*

SUNDAY EVENING MUSICALS. Another in a series of Sunday Evening Musicales will be held in Fuller Lodge this Sunday, July 1, at 8:15. Mr. Robert Dyke, tenor and Mr. Robert Fryxell, Shelliist, are the featured artists. All Post personnel, both military and civilian, are cordially invited to attend.

\* \* \* \* \*

There will be no Spanish classes this week. Classes will be resumed next week.



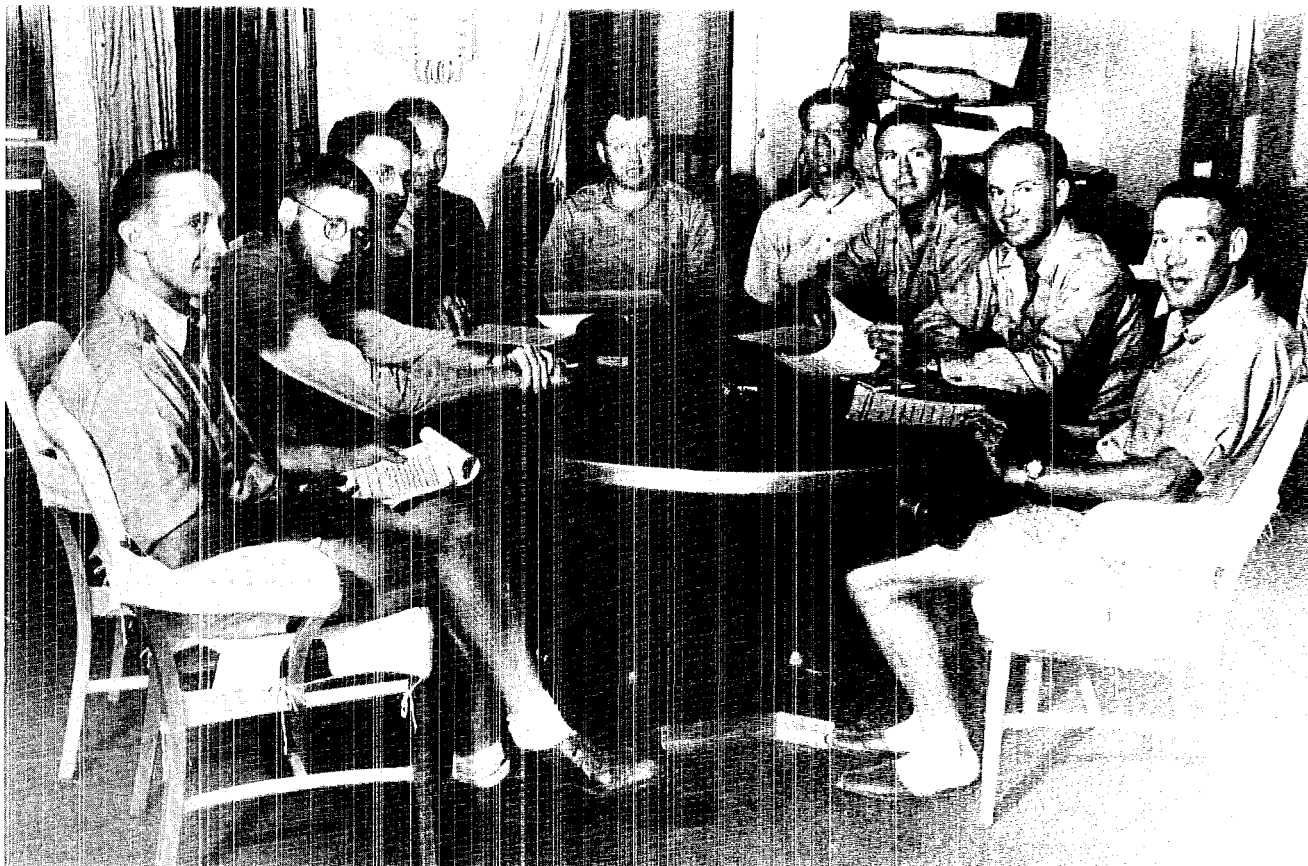
# Faces And Places



Arthur Machen at Ebeye Island  
steak fry

In the western area





Group leaders of B-Division (Los Alamos Bomb Preparation Division) met in the flag quarters of the U.S.S. Albemarle, AV-5, before Operation Crossroads in the Pacific. Attending were, left to right, Phil Barnes, weaponeers, Capt. John King, security, R.E. Schreiber, nuclear assembly, Glenn Fowler, instrumentation, Roger S. Warner, division leader, William McCord, fusing and firing, Bob Henderson, engineering, Arthur Machen, mechanical assembly, and H.W. Russ, logistics.

*Personal photo not available*